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Hon. David Cash  
Assistant Secretary for Policy  
Executive Office of Energy & Environmental Affairs  
100 Cambridge Street  
Boston, MA 02114

Dear Mr. Cash,

Verenium Corporation is pleased to offer comments in response to the Draft Summary Recommendations (“Recommendations”) of the Massachusetts Biofuels Task Force’s (MBTF) upcoming report. We thank the MBTF members for their hard work on these important public policy issues, as reflected in the Recommendations. We and the citizens of Massachusetts are indebted to them for their sustained commitment to develop policies that will enable Massachusetts, over the long term, to find workable substitutes for, and reduce our dependence upon, petroleum-based fuels.

1. The Background of the Task Force’s Work: “Biofuels Backlash”

During recent months, we have all witnessed a troubling, continued rise in oil prices to an all-time record of nearly \$110. At the federal level, in December 2007, Congress enacted legislation with an aggressive target for expanding biofuels, especially low-carbon “advanced biofuels,” to address this challenge. Ironically, at the same time, we have also seen rising criticism in some quarters of the movement to expand biofuels production. This “biofuels backlash” has arisen, in part, from concern that biofuels production might drive high levels of land use conversions, resulting in a “carbon debt” – a rapid release of carbon from newly-cultivated soils and forest destruction that would take decades or longer to “repay” through low-carbon biofuels production.

It is essential to keep these concerns in proper perspective. First of all, the recent sharp rise of oil prices – and the inverse fall of the dollar – have made it abundantly clear that the cost of failure to develop and deploy petroleum substitutes could be high or even catastrophic to our economy and way of life. Inaction and paralysis is simply not a viable response. As a society we must never forget that our continued use of hydrocarbon resources is the major factor contributing to the rising atmospheric carbon level. Year by year, our use of these resources compounds a “carbon debt” of vast, even imponderable magnitude; our dominant hydrocarbon energy resources developed over eons, yet we are consuming them in a matter of a few centuries. Our society must change course, both to avert catastrophic climate change as well as to avoid the growing spectre of rapid resource depletion.

Biofuels production is, admittedly, not a comprehensive, “silver bullet” solution to these critical problems. Massachusetts can, and should, make every effort to promote diversified energy strategies

to minimize fuel demand. These should include conservation, efficiency and smart growth. However, at the end of the day, we simply cannot neglect the need to assure a compatible, technologically feasible alternative to petroleum-based fuels, with the convenience, flexibility, storability and energy density offered by their liquid form. Biofuels such as ethanol and biodiesel represent the most viable, environmentally benign candidates to play this role. The question is not whether or not to pursue biofuels – but how to pursue biofuels in the right way.

## 2. Verenium Supports the Recommendations' Focus on "Advanced Biofuels"

The Recommendations place a preponderant emphasis on the development of more sustainable, lower-carbon fuels, or so-called "Advanced Biofuels" as defined under the Energy Independence and Security Act of 2007 (EISA). By its terms, EISA requires 50-60% (full lifecycle) reductions in net carbon emissions for Advanced Biofuels, compared to a baseline set by gasoline. This emphasis on Advanced Biofuels would differentiate Massachusetts from most other states that have implemented biofuels incentive frameworks to date. Verenium believes that such a heightened emphasis on Advanced Biofuels is entirely appropriate, given the current state of biofuels technology development and the potential impacts of large-scale increases in grain ethanol production.

We also urge, within the context of this focus on Advanced Biofuels, that efforts, resources, R&D support and incentives be focused on those technologies and feedstocks that promise to yield the greatest long-term benefits as measured by the following metrics:

- Total biofuels yields per acre;
- EROEI (energy return on energy invested); and
- Net carbon emissions, e.g., per mile driven.

Verenium believes that a focus on high-yield biomass crops, and on conversion processes that offer high yields per unit of biomass input, offers the best pathway to maximizing yield per acre, wherever such production occurs – i.e., within Massachusetts or outside its borders. This, in turn, will minimize the need for land use conversions to put additional lands under cultivation.

The notion that increased biofuels production drives land use conversions on an acre-for-acre basis, popularized in the press in recent weeks, is a simplistic and incorrect interpretation of research on the issue. It reflects a "win-lose," arithmetical mode of thinking. A well-designed biofuels policy takes multiple factors into consideration in a more algebraic fashion – including land use, climate and fertility, crop values in alternative markets, input costs, availability of water, and proximity to markets. Proper and balanced consideration of all of these factors can lead to optimal solutions – offering more food, more fuel and fewer carbon emissions. Rather than responding to "sound bite" criticisms (e.g., "food vs. fuel"), good biofuels policy addresses all of these issues and factors in an integrated fashion, using sophisticated analysis. Given the importance of the matters at stake, it is well worth the effort to frame this issue properly and accurately.

## 3. Comments on Specific MBTF Recommendations

Finally, we urge the MBTF to consider the following specific points in formulating its final recommendations:

- Low Carbon Fuel Standard. We support the Task Force's recommendation that Massachusetts move over time to reduce the carbon content of fuel through a Low Carbon Fuel Standard. Conservation alone cannot assure that we will reach the 80% reduction in

- greenhouse gas emissions called for in the newly-enacted Greenhouse Gas legislation. The Final Report must explicitly embrace the longer-term goal of a Low Carbon Fuel Standard.
- Blending Requirements. In the meantime, Massachusetts must take appropriate, pragmatic steps that are directionally in line with this goal. Some states are beginning to examine the feasibility of higher blending requirements (e.g., E-15 or E-20) and we recommend that Massachusetts monitor such efforts and implement higher blending requirements if these can be shown to be feasible and not unduly burdensome.
  - E85 Infrastructure. We urge the MBTF to recommend more aggressive investment in E85 dispensing stations, for example, along major state highway corridors. Lack of such infrastructure poses a major bottleneck to the use of renewable fuels. The investment cost of such infrastructure is modest when weighed against the optionality benefit of enabling customers to use alternatives to petroleum-based fuels.
  - Flexible Fuel Vehicles (FFVs). Massachusetts should aggressively encourage the deployment of FFVs both in state and municipal fleets, and among private purchasers of automobiles, with clear and date-certain targets that exceed federal targets. This is one of the lowest-cost, highest-leverage steps the state can take to bring about greater flexibility in the automotive fuels sector over the next several years.
  - Gasoline excise tax exemption for advanced biofuels. Verenum strongly supports the use of the state gasoline excise tax exemption for cellulosic ethanol, as a means of encouraging the use of this fuel within Massachusetts. We would support the extension of this exemption to all fuels that qualify as “Advanced Biofuels” under the federal Renewable Fuel Standard.
  - Pursuit of federal funding opportunities. To promote the development of its growing energy/biotechnology cluster, Massachusetts should encourage and support applications by Massachusetts-based companies for federal funding support made available under EISA. Massachusetts should consider offering such support, not only for projects located in Massachusetts, but also for meritorious projects sponsored by Massachusetts companies that may be located in other states.

In closing, and in relation to this last point, Verenum believes that Massachusetts can lead by example by enacting a forward-looking biofuels law, regardless of how large an opportunity exists for biofuels development within our borders. Feedstock considerations, land values, climate and other factors are more likely to drive opportunities for large-scale biofuels development in other states and regions of the country. Nevertheless, Massachusetts can benefit from supporting projects located in other states because they will increase the general availability of biofuels, advance the state of technology development, and drive opportunities for Massachusetts-domiciled companies. Whether or not a large-scale opportunity for the actual production of biofuels from Massachusetts-sourced feedstocks emerges, Massachusetts can become a national and global leader in growing the companies that develop, export and support this technology. The Massachusetts economy stands to benefit in much the same way that California has benefited from the success of Silicon Valley companies in the global proliferation of high technology and the internet.

Thank you for the opportunity to furnish these comments.

Sincerely,



John B. Howe  
Vice President, Public Affairs